v.LiNK Video-inserter

VL2-LR12-OPS

For Land Rover and Jaguar with touch-screen navigation version 3

Video-inserter with 2 video + RGB + rear-view camera input
+ Support of touch-screen and factory optical park-system display (OPS)

Product features

- **Video-inserter**
- **2 video-inputs for after-market devices (e.g. DVD-Player, DVB-T tuner, …)**
- **Touch-screen support for after-market navigation**
- **Built-in audio-switch (no audio-insertion)**
- **Rear-view camera video-input**
- **Automatic switching to rear-view camera input on engagement of reverse gear**
- **Support of the factory optical park-system display (OPS)**
- **RGB-input for after-market navigation**
- **Video-in-motion (ONLY for connected video-sources)**
- **Compatible with factory rear-view camera**
- **AV-inputs PAL/NTSC compatible**

Version 28.07.2015

Contents

Legal Information

By law, watching moving pictures while driving is prohibited, the driver must not be distracted. We do not accept any liability for material damage or personal injury resulting, directly or indirectly, from installation or operation of this product. This product should only be used while standing or to display fixed menus or rear-view-camera video when the vehicle is moving, for example the MP3 menu for DVD upgrades.

Changes/updates of the vehicle's software can cause malfunctions of the interface. We offer free software-updates for our interfaces for one year after purchase. To receive a free update, the interface must be sent in at own cost. Labor cost for and other expenses involved with the software-updates will not be refunded.

1. Prior to installation

Read the manual prior to installation.
Technical knowledge is necessary for installation. The place of installation must be free of moisture and away from heat sources.

1.1. Delivery contents

Take down the serial number of the interface and store this manual for support purposes: _____

1.2. Checking the compatibility of vehicle and accessories

Requirements

Vehicle	Jaguar XF X250, XJ X351, Land Rover Range Rover Evoque L538, Range Rover Sport, Discovery4 L319 **from model year 2012**
Head-unit/monitor	Touch-screen navigation version 3

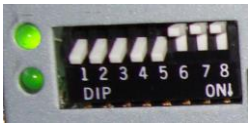
Limitations

Video only	The interface inserts ONLY video signals into the infotainment. For sound use the factory-audio-AUX-input or a FM-modulator.

The interface have to be installed in the monitor panel (the cover needs to be opened!).

1.3. Dip-switch settings

With the video interface boxes dip-switches it is possible to select vehicle/navigation the interface is to be installed in (dip 7), to activate the display of the factory optical park-system display (dip 8), to select the video signal of an optional connected after-market navigation (Dip 4), to dis- or enable the interfaces inputs (dip 1 to 3) and to preselect the type of camera which is (to be) installed (dip 5).



Dip position down is ON and position up is OFF.

1.3.1. Vehicle selection (dip 7)

Choose the vehicle/navigation/monitor the interface is to be installed to and set dip 7 according to the below table.

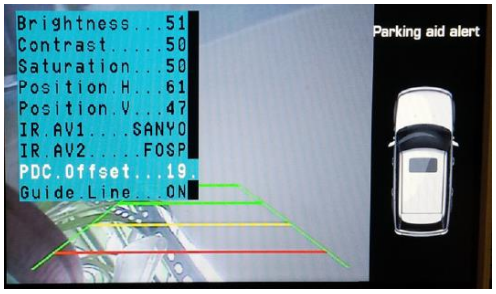
Vehicle/Navigation	Dip 7
7“ monitor, e.g. Jaguar and Discovery 4	ON
8“ monitor, e.g. Evoque	OFF

1.3.2. Activation of the factory optical park-system display (dip 8)

Choose if rear-view camera and optical park-system or only rear-view camera should be displayed after engaging the reverse gear and set dip 8 according to the below table.

Display	Dip 8
Rear-view camera and OPS	ON
Only rear-view camera	OFF

Note: The width of the factory optical park-system display can be regulated via the OSD. Press the MENU button to open settings menu on the OSD and to switch to the next setting. Choose menu item “PDC Offset” and regulate the width by UP and DOWN.



1.3.3. Video signal selection after-market navigation(Dip 4)

To the video interface’s RGB-input it is possible to connect a RGB- or a VGA-video source. Set dip 4 according to table.

After-Market Navigation	Dip 4
RGB (800x480) or VGA (640x480) (RGB-Input Pin 4 H-Sync, Pin 8 V-Sync)	ON
RGB NTSC (480x240)	OFF

1.3.4. Enabling the interface’s video inputs (dip 1-3)

Only the enabled video inputs can be accessed when switching through the video sources. It is recommended to enable only the required inputs for the disabled will be skipped when switching through the video interfaces inputs.

Dip	Video-input	ON (down)	OFF (up)
Dip 1	RGB	enabled	disabled
Dip 2	Video IN1	enabled	disabled
Dip 3	Video IN2	enabled	disabled

1.3.5. Rear-view camera settings (dip 5)

Depending on whether no camera, after-market camera or factory camera shall be used, dip 5 must use different settings. If set to OFF, the interface switches to factory LVDS picture when the reverse gear is engaged to display factory rear-view camera or factory PDC picture.

Rear-view camera type	Dip 5
None	OFF
Factory	OFF
After-market	ON

Note: If the Can-bus does not work while connecting an after-market rear-view camera, cut the green cable of the 6pin to 8pin cable at the black 8pin connector and connect it to the reverse gear light (+12V). For this use a relay because the reverse gear light of the vehicle is clocked (relay AC-RW1230 and AC-RS5 optional available).

1.4. Dip-switch settings of the CAN-box

With the CAN-boxes dip-switches it is possible to select vehicle/ head-unit the interface is to be installed in.

Dip position down is ON and position up is OFF.

Vehicle/Navigation	Dip 1	Dip 2	Dip 3	Dip 4
Jaguar	OFF	OFF	OFF	ON
Land Rover	OFF	OFF	ON	OFF
LR Range Rover Evoque	OFF	OFF	ON	ON

After each change of the dip switch settings you have to execute a power reset of the CAN-box!

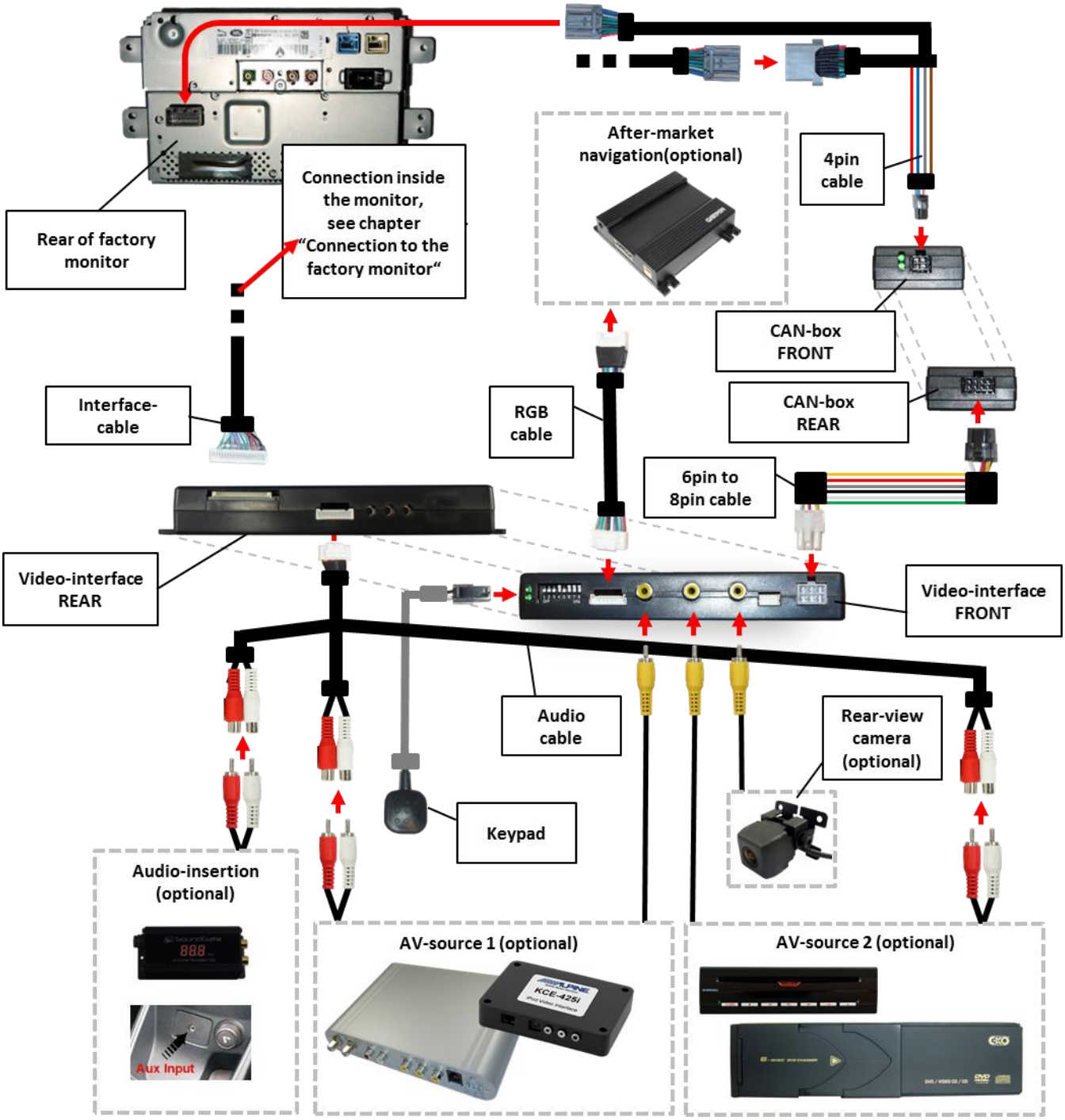
2. Installation

Switch off ignition and disconnect the vehicle's battery! The interface needs a permanent 12V source. If according to factory rules disconnecting the battery is to be avoided, it is usually sufficient to put the vehicle is sleep-mode. In case the sleep-mode does not show success, disconnect the battery with a resistor lead.
If power source is not taken directly from the battery, the connection has to be checked for being start-up proven and permanent.

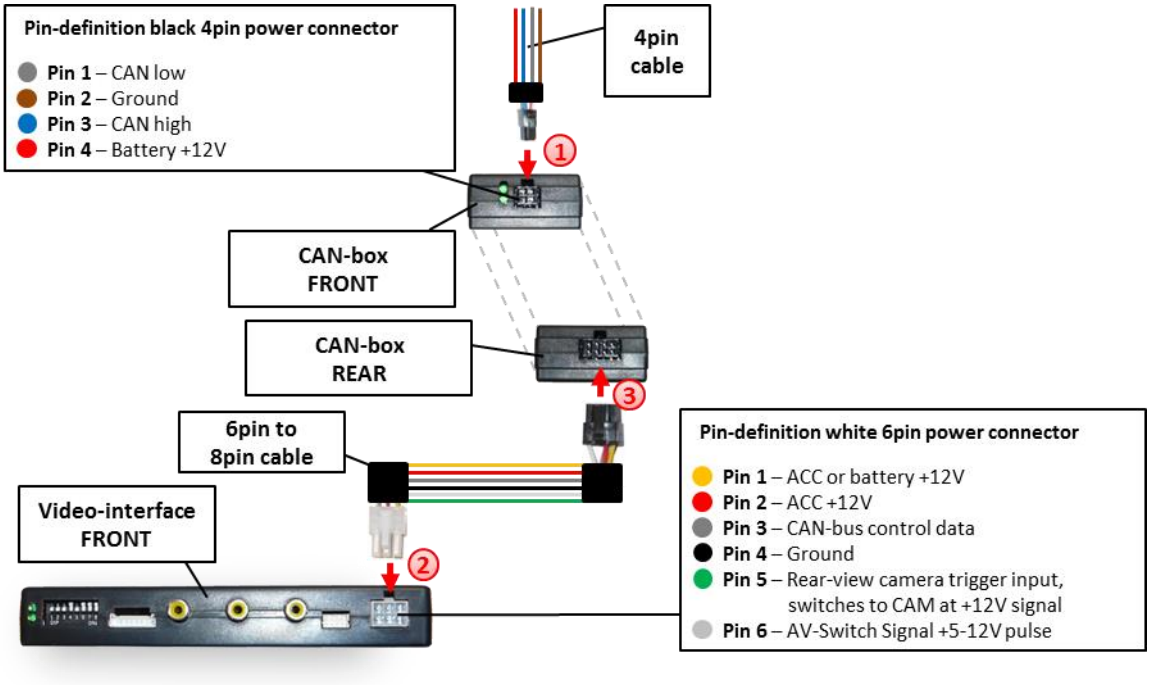
2.1. Place of installation

The interface is installed on the backside of the vehicle's monitor. The external daughter PCB is plugged in the flex cable between panel-board and main-panel of the factory monitor. Therefore, the monitor must be removed and the body must be opened.

2.2. Connection schema



2.3. Connecting video-interface and CAN-box



1. Connect black female 4pin Micro-Fit connector of the 4pin cable to the male 4pin Micro-Fit connector of the CAN-box.

   Note: Check LEDs on CAN-box after reconnecting the battery, one must be on.

2. Connect white female 6pin Molex connector of the 6pin to 8pin cable to the male 6pin Molex connector of the video-interface.

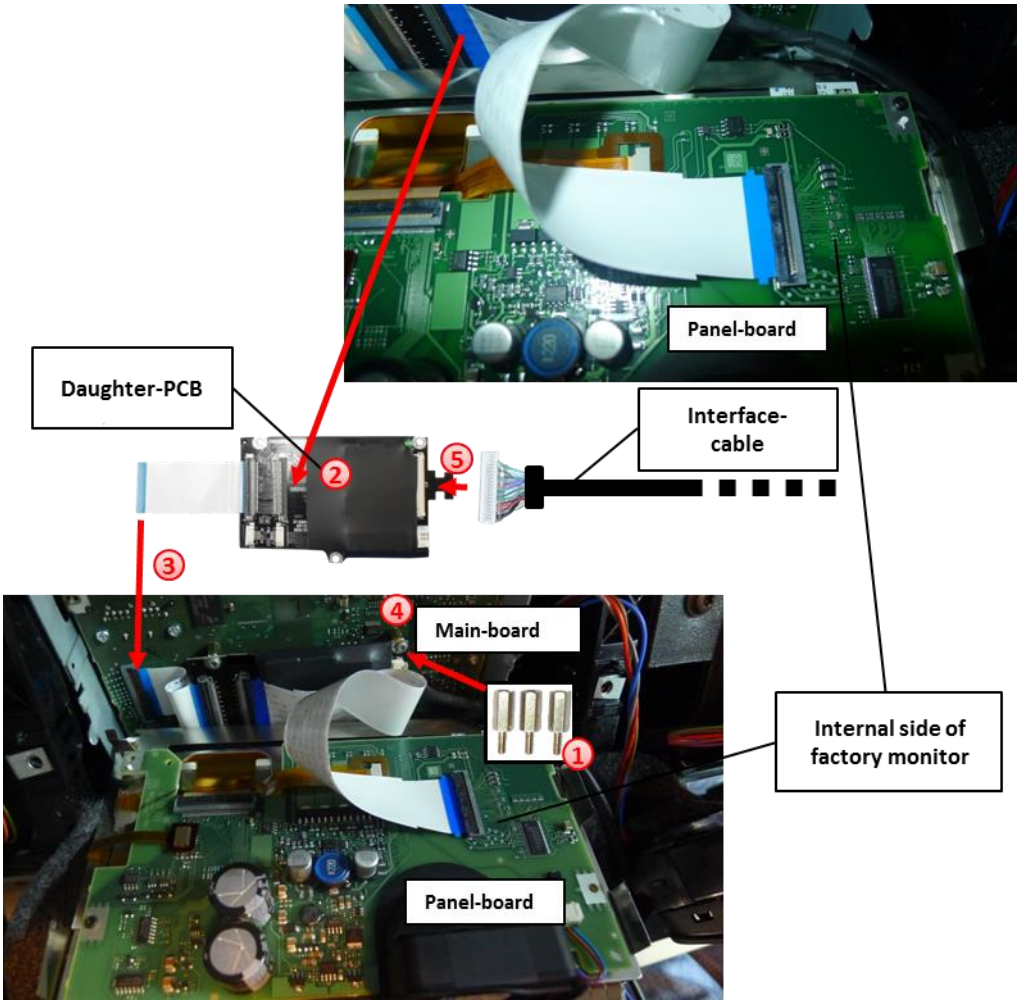
3. Connect black female 8pin Micro-Fit connector of the 6pin to 8pin cable to male 8pin Micro-Fit connector of the CAN-box.

   Note: Check LEDs on video-interface after reconnecting the battery, one must be on.

2.4. Connection to the factory monitor

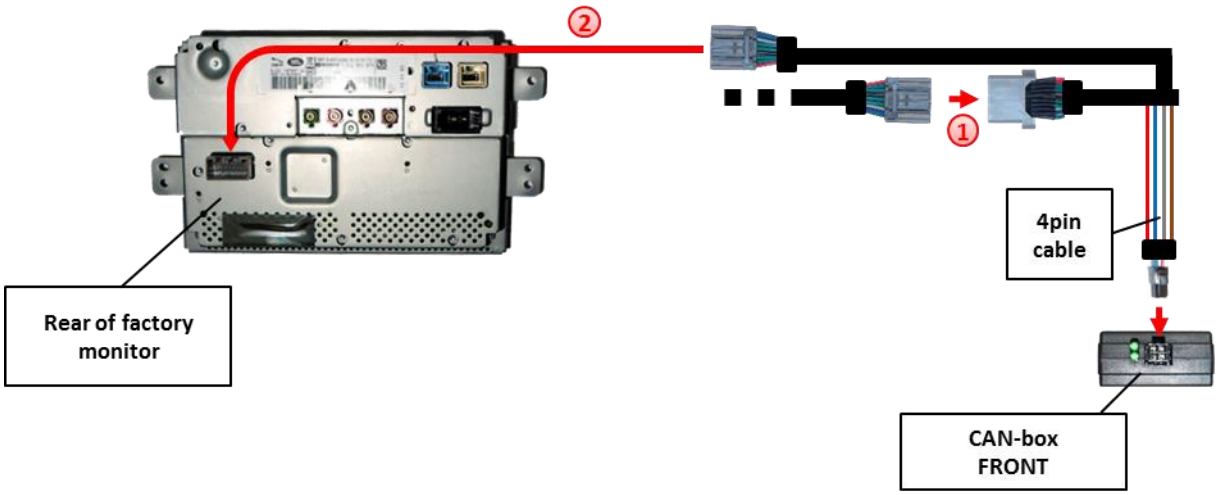
2.4.1. Connection by daughter-PCB

Remove factory monitor and open the body.



1. Fix the 3 spacers for mounting the daughter-PCB to the main-panel.
2. Remove the ribbon cable of the factory monitor from the main-board and connect it to the ribbon cable-socket “PNL_OUT“ of the daughter-PCB.
3. Connect the ribbon cable of the daughter-PCB to the ribbon cable-socket of the main-board.
4. Fix the daughter-PCB at the spacers of the main-board.
5. Connect the interface-cable to the male 20pin connector of the daughter-PCB and to the male 20pin connector on the rear of the video-interface.

2.4.2. Connecting power and CAN-bus



1. Remove female 16pin LR connector of vehicle harness from the rear of the factory monitor and connect it to the male 16pin LR connector of the 4pin cable.

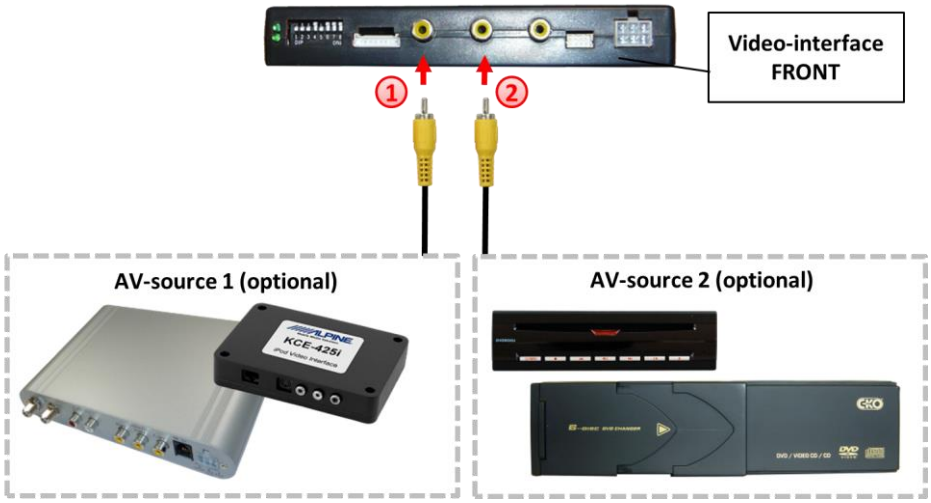
2. Connect female 16pin LR connector of the 4pin cable to the male 16pin LR connector of the factory monitor.

2.5. Connecting peripheral devices

It is possible to connect 2 after-market AV-sources, an after-market rear-view camera and an after-market navigation to the video-interface.

Before final installation of the peripheral devices, we recommend a test-run to detect incompatibility of vehicle and interface. Due to changes in the production of the vehicle manufacturer is always the possibility of incompatibility.

2.5.1. Video-sources to IN1 and IN2

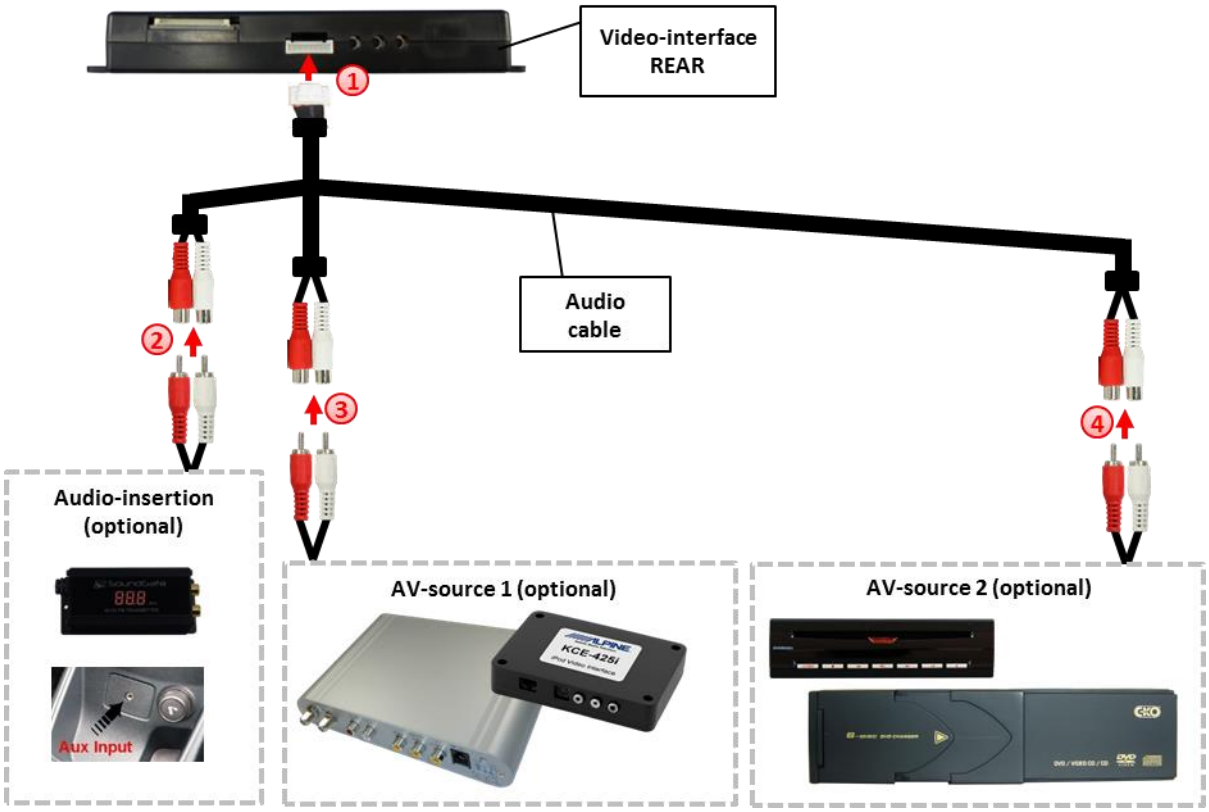


1. Connect video RCA of the AV-source 1 to the female RCA connector IN1 of the video-interface.

2. Connect video RCA of the AV-source 2 to the female RCA connector IN2 of the video-interface.

2.5.2. Audio-switch and audio insertion

This interface can only insert video signals into the factory infotainment. Audio insertion is possible by possibly existing factory audio AUX input or FM-modulator. The inserted video-signal can be activated parallel to each audio-mode of the factory infotainment.
It is possible to switch the audio signals from the to IN1 and IN2 connected AV-sources parallel to the video-signal of the respective AV-source by video-interface's built-in audio-switch.



Note: If only one AV-source shall be connected, it is possible to connect the video output of the AV-source to video IN1 of the video-interface and the audio output of the AV-source direct to the audio-insertion.

1. Connect female 8pin connector of the audio cable to male 8pin connector of the video-interface.

2. Connect the audio-RCA of the factory AUX-input or the FM-modulator to the female RCA port AV-Out of the audio cable.

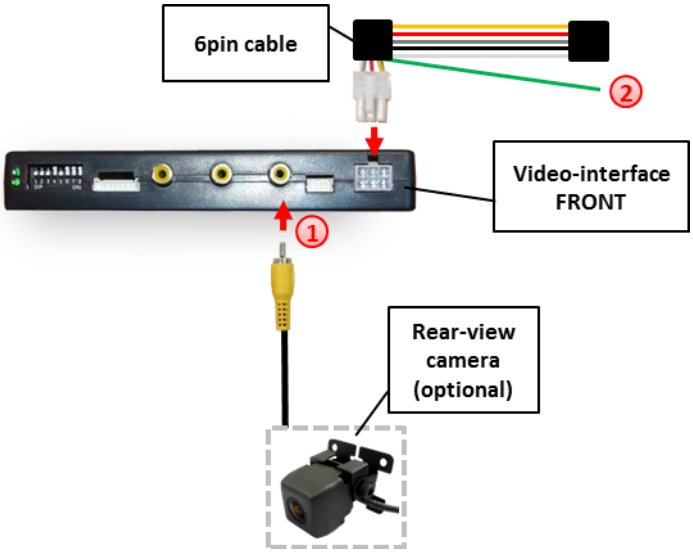
3. Connect the audio-RCA of the AV-source 1 to the female RCA port AV1 of the audio cable.

4. Connect the audio-RCA of the AV-source 2 to the female RCA port AV2 of the audio cable.

Audio pins	Definition
1/2	Audio input signal R/L of source IN2
3/4	Audio input signal R/L of source IN1
5/6	Audio output signal R/L of factory audio AUX or FM-modulator
7	Ground
8	No function

Note: When switching the video interface from video-IN1 to video-IN2, the audio will also automatically be switched.

2.5.3. After-market rear-view camera

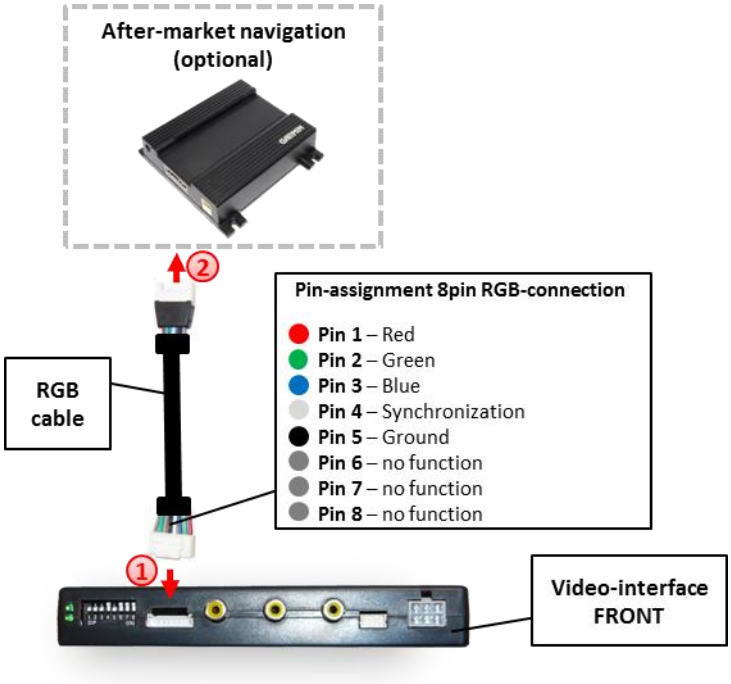


1 Connect the video-RCA of the after-market rear-view camera to the female RCA port of the video-interface.

2 If the Can-bus does not work while connecting an after-market rear-view camera, cut the green cable of the 6pin to 8pin cable at the black 8pin connector and connect it to the reverse gear light (+12V). For this use a relay because the reverse gear light of the vehicle is clocked (relay AC-RW1230 and AC-RS5 optional available).

Note: Set Dip 5 to ON.

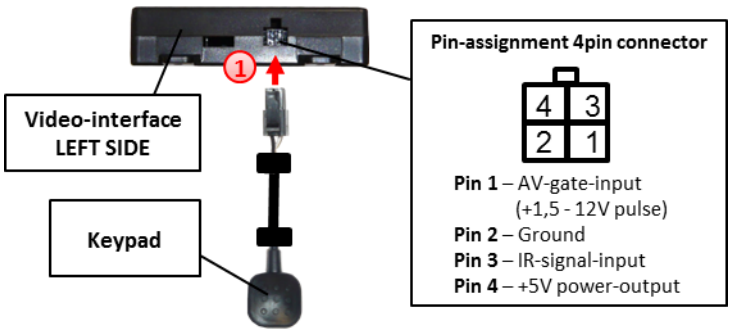
2.5.4. After-market navigation



1 Connect female 8pin connector of the RGB cable to the male 8pin connector of the video-interface. The loose grey wires have no function and have to be isolated.

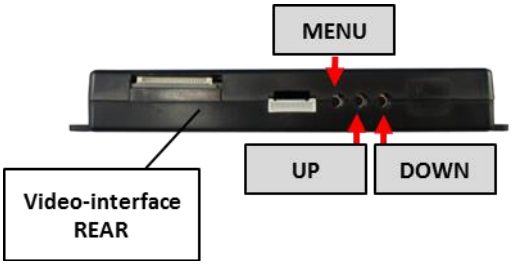
2 Connect male 6pin connector of the RGB cable to the after-Market navigation.

2.6. Connecting video-interface and keypad



1 Connect the female 4pin connector of the keypad to the male 4pin connector of the video-interface.

2.7. Picture settings



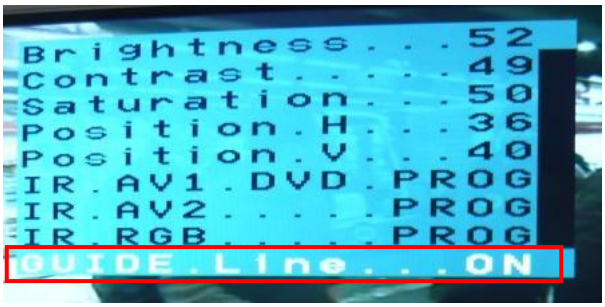
After installing the sources the picture settings can be changed using a pen on the buttons of the video interface. Press the MENU button to open settings menu on the OSD and to switch to the next setting. UP and DOWN change the corresponding values. The buttons are embedded in the housing to avoid accidental changes during or after installation.

The following settings are available:

Brightness
Contrast
Saturation
Position H (horizontal)
Position V (vertical)

2.8. Activation of parking guide lines for rear-view camera

The parking guide lines for rear-view camera can be activated of deactivated via the OSD. Press the MENU button to open settings menu on the OSD and to switch to the next setting. Choose menu item “Guide Line” and activate (ON) or deactivate (OFF) parking guide lines by UP and DOWN buttons.



3. Interface operation

3.1. By MENU-button (Land Rover) and NAV-button (Jaguar)

The **MENU**-button on **Land Rover** vehicles (Audio-button ♬ in vehicles without factory navigation) and the **NAV**-button in **Jaguar** vehicles of the factory navigation system can be used to execute interface functions.

Press NAV-button (Audio-button) to switch the video-source. Each repetition will switch to the next enabled input. If all inputs are enabled the order is:

Factory video → RGB-in → video IN1 → video IN2 → factory video →…

Inputs which are not enabled are skipped. If the audio cable is connected, when switching from video IN1 to video IN2, also the sound will be switched.

3.2. By keypad

Alternatively to the factory MENU/NAV-button the interface's keypad can be used to switch the enabled inputs. The white wire of the 6pin cable must be cut in this case!

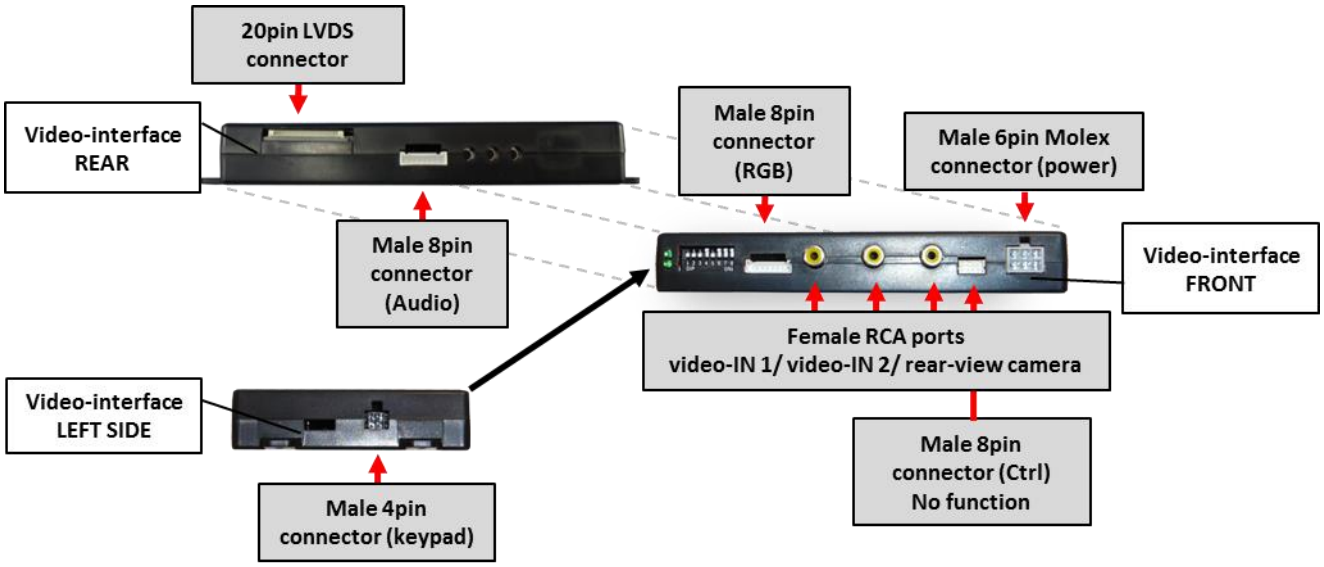
Note: The white wire of the 6pin cable can be used with a +5-12V pulse to switch the video-sources alternatively.

4. Specifications

BATT/ACC range	7V ~ 25V
Stand-by power drain	<5mA
Power	0.2A @12V
Power consumption	2.4W
Video input	0.7V~1V
Video input formats	PAL/NTSC
RGB-video amplitude	0.7V with 75 Ohm impedance
Temperature range	-40°C to +85°C
Weight	195g
Dimensions (box only) B x H x T	182 x 24 x 100 mm

CE ⎓ 12V DC

5. Connections (video-interface)



6. Frequently asked questions

For any troubles which may occur, check the following table for a solution before requesting support from your vendor.

Symptom	Reason	Possible solution
No picture/black picture (factory picture).	Not all connectors have been reconnected to factory head-unit or monitor after installation.	Connect missing connectors.
	No power on CAN-bus box (all LED CAN-bus box are off).	Check power supply of CAN-bus box. Check CAN-bus connection of CAN-bus box.
	CAN-bus box connected to CAN-bus in wrong place.	Refer to the manual where to connected to the CAN-bus. If not mentioned, try another place to connect to the CAN-bus.
	No power on video-interface (all LED video-interface are off).	Check whether CAN-bus box delivers +12V ACC on red wire output of 8pin to 6pin cable. If not cut wire and supply ACC +12V directly to video-interface.
No picture/black picture/white picture (inserted picture) but factory picture is OK.	No picture from video source.	Check on other monitor whether video source is OK.
	No video-source connected to the selected interface input.	Check settings dips 1 to 3 of video interface which inputs are activated and switch to corresponding input(s).
	LVDS cables plugged in wrong place.	Double-check whether order of LVDS cables is exactly connected according to manual. Plugging into head-unit does not work when the manual says to plug into monitor and vice versa.
Inserted picture totally wrong size or position.	Wrong monitor settings of video-interface.	Try different combinations of dips 7 and 8 of video-interface. Unplug 6pin power after each change.
Inserted picture double or 4 times on monitor.		
Inserted picture distorted, flickering or running vertically.	Video sources output set to AUTO or MULTI which causes a conflict with the interfaces auto detection.	Set video source output fixed to PAL or NTSC. It is best to set all video sources to the same standard.
	If error occurs only after source switching: Connected sources are not set to the same TV standard.	Set all video sources to the same standard.
Inserted picture b/w.	Some interfaces can only handle NTSC input.	Check manual whether there is a limitation to NTSC mentioned. If yes, set source fixed to NTSC output.
Inserted picture qual. bad.	Picture settings have not been adjusted.	Use the 3 buttons and the interface's OSD to adjust the picture settings for the corresponding video input.
Inserted picture size slightly wrong.		
Inserted picture position wrong.		
Camera input picture flickers.	Camera is being tested under fluorescent light which shines directly into the camera.	Test camera under natural light outside the garage.
Camera input picture is bluish.	Protection sticker not removed from camera lens.	Remove protection sticker.

Symptom	Reason	Possible solution
Camera input picture black.	Camera power taken directly from reverse gear lamp.	Use relay or electronics to "clean" reverse gear lamp power. Alternatively, if CAN-bus box is compatible with the vehicle, camera power can be taken from green wire of 6pin to 8pin cable.
Camera input picture has distortion.		
Camera input picture settings cannot be adjusted.	Camera input picture settings can only be adjusted in AV2 mode.	Set dip 3 of video-interface to ON (if not input AV2 is not already activated) and connect the camera to AV2. Switch to AV2 and adjust settings. Reconnect camera to camera input and deactivate AV2 if not used for other source.
Graphics of a car in camera input picture.	Function PDC is ON in the interface OSD.	In compatible vehicles, the graphics will display the factory PDC distance. If not working or not wanted, set interface OSD menu item UI-CNTRL to ALLOFF.
Chinese signs in camera input picture	Function RET or ALL is ON (function for Asian market) in the interface OSD.	Set interface OSD menu item UI-CNTRL to ALLOFF or PDCON.
Not possible to switch video sources by OEM button.	CAN-bus interface does not support this function for vehicle.	Use external keypad or cut white wire of 6pin to 8pin cable and apply +12V impulses for AV-switching.
	Pressed too short.	For video source switching a longer press of about 2.5 seconds is required.
Not possible to switch video sources by external keypad.	SW-version of interface does not support external keypad.	Use OEM-button or cut white wire of 6pin to 8pin cable and apply +12V impulses for AV-switching.
Interface does not switch to camera input when reverse gear is engaged.	CAN-bus interface does not support this function for the vehicles.	Cut the green wire of the 6pin to 8pin cable and apply +12V constant from reverse gear-lamp signal. Use relay to "clean" gear lamp power.
Interface switches video-sources by itself.	CAN-bus interface compatibility to vehicle is limited.	Cut the grey wire of 6pin to 8pin and isolate both ends. If problem still occurs, additionally cut the white wire of 6pin to 8pin cable and isolate both ends.

7. Technical Support

Please note that direct technical support is only available for products purchased directly from NavLinkz GmbH. For products bought from other sources, contact your vendor for technical support.

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